

Applicants: Pulkkinen et al.
Application Serial No.: 10/046,668
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Docket No.: 187-64
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REMARKS

The non-final Office Action mailed October 6, 2003 and the references cited therein have been carefully considered. Claim 1 has been amended in a sincere effort to further clarify that which Applicants regard as the invention.

Support for this Amendment is found generally within the specification, claims, and drawings, as originally filed. Specifically, support for the amendment to Claim 1 is provided at page 2, paragraphs 7 and 8; page 5, paragraphs 25 and 26; page 6, paragraphs 27-29; page 7, paragraphs 30 and 31; and page 8, paragraphs 32-35 of the specification.

Claims 1-3, 13, and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,458,548 to Crossing et al. (*Crossing*). The Examiner considers the right half of the display 14 in Figure 8 to be the first end and the left half of the display 14 to be the second end. The Examiner indicates that Figure 8 discloses a display for displaying heart rate information, a display element for displaying settable minimum and maximum limits for a desired heart rate level, and a display element unit controlled by the heart rate level and provided with several display segments, one or more of which are used to illustrate the height of the heart rate level with respect to minimum and maximum limits.

Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being obvious over *Crossing*. Claims 1-12, 14, and 15-19 were rejected as being obvious over U.S. Patent No. 6,345,197 to Fabrizio et al. (*Fabrizio*). Specifically, the Examiner states that *Fabrizio* discloses a heart rate monitor that displays heart rate information, as shown in Figure 1, and settable minimum and maximum limits for a desired heart rate level, as shown in Figures 7d, 7e and described at column 3, lines 25-33. The Examiner further states that *Fabrizio* includes a display element unit controlled by the heart rate level having several segments, one or more of which are used to illustrate the height of the heart rate level with respect to minimum and maximum limits, as shown in Figures 7a, 7b, and 7e.

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The Examiner concedes that *Fabrizio* fails to disclose a display element for displaying a settable minimum limit being located at a first end of the display element unit and a display element for displaying a settable maximum limit being located at a second end of the display element unit. However, the Examiner indicates that it would have been obvious to modify the device in *Fabrizio* to include this feature since the Applicant did not disclose criticality and/or unexpected results of this feature, and it appears that the invention would perform equally well with any display element unit, such as that described in *Fabrizio*.

The present invention is directed to a carry-on heart rate monitor measuring a person's heart rate non-invasively. The heart rate monitor includes a display for displaying heart rate information about a heart rate signal measured on the person, wherein the display includes a display element for displaying a settable minimum limit for a desired heart rate level, a display element for displaying a settable maximum limit for a desired heart rate level, and a display element unit controlled by the measured heart rate level provided with several display element segments.

At least one of the display element segments controlled by the measured heart rate level represents the heart rate level by a position of the at least one display element segment relative to the display element for displaying the settable minimum limit for the desired heart rate level and the display element for displaying the settable maximum limit for the desired heart rate level, as now defined by amended Claim 1.

However, it is respectfully submitted that Figure 8 in *Crossing* merely shows a numeric display of the actual heart rate, which is located between separate numeric displays for minimum and maximum heart rate limits. The display in *Crossing* does not provide the user with an overall graphical representation of the height of the current heart rate with respect to the minimum and maximum limits of the desired heart rate level, as disclosed at page 2, lines 30-32 of the specification. Nor does *Crossing* illustrate the height of the heart

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rate level with respect to the minimum and the maximum limits, as shown in Figure 4-6 and disclosed at page 5, lines 33-35 of the specification.

This is achieved in the present invention by a novel manner of placing a display element 201, which indicates a desired minimum limit for the heart rate, and a display element 202, which indicates a desired maximum limit for the heart rate, with respect to the display element segment unit 210, 211 to 220 to visually illustrate the relative position of the current heart rate level between these limits, as disclosed at page 5, line 35 through page 6, line 4 of the specification.

Applicants respectfully disagree with the Examiner's contention that the invention would perform equally well with any type of display unit. By incorporating at least one display element segment that represents the heart rate level from its position relative to a display element for displaying a settable minimum limit and a display element for displaying a settable maximum limit, the monitor is able to provide a visual illustration that is substantially easier to read and comprehend during exercise than either of the numeric displays described in *Crossing* or *Fabrizio*, as well as any of the conventional alternatives currently available. This is particularly true when the user glances quickly at the monitor or there is movement between the user's eye and the display, which is typically the case when walking or running.

Crossing merely describes a numeric display, rather than a graphical and/or visual display with which the user can more easily visualize the position of his current heart rate in relation to minimum and maximum limits for the desired heart rate level, as in the present invention. Further, in *Crossing*, the location of the numeric element 120 that indicates the current heart rate does not change its position relative to the elements indicating the minimum 104 and maximum 130 heart rate limits, as now defined by amended Claim 1.

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Likewise, *Fabrizio* teaches only a numeric display, which does not even provide an indication of minimum and maximum heart rate limits. Thus, when using the device in *Fabrizio*, the user has no way of knowing how close his current heart rate is to the maximum or minimum heart rate limits. Therefore, representing the relationship between the current heart rate and its limits as a function of position rather than numerically significantly reduces the amount of cognitive thought, which is substantially minimized during strenuous activity or exercise, required for comprehension by the user.

Applicants respectfully note that in order to support a claim of *prima facie* anticipation, a single reference must teach or enable each of the claimed elements as arranged in the claim interpreted by one of ordinary skill in the art. Further, in order to support a claim of *prima facie* obviousness, the cited references must teach or suggest each and every element of the invention, and there must be a motivation in the references or the prior art to combine the references and the prior art as suggested.

However, nothing in the art of record would teach or suggest, either alone or in combination, a carry-on heart rate monitor that measures a person's heart rate non-invasively, wherein at least one of the display element segments controlled by the measured heart rate level represents the heart rate level by a position of the at least one display element segment relative to the display element for displaying the settable minimum limit for the desired heart rate level and the display element for displaying the settable maximum limit for the desired heart rate level, as now defined by amended Claim 1.

Applicants respectfully submit that Claims 2-19, which ultimately depend from Claim 1, are patentable over the art of record by virtue of their dependency from Claim 1. Further, Applicants submit that Claims 2-19 define patentable subject matter in their own right. Therefore, it is respectfully requested that the rejection of Claims 1-3, 13, and 14 under 35 U.S.C. § 102(b) and the rejection of Claims 1-12, 14, and 15-19 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

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In view of the foregoing Amendment and remarks, entry of the amendments to Claim 1; favorable consideration of Claim 1, as amended; favorable reconsideration of Claims 2-19; and allowance of pending Claims 1-19 are respectfully and earnestly solicited.

Respectfully submitted,


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